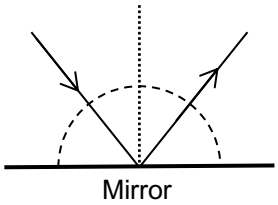
1. 


Label the following concepts in the picture to the left:

**Normal**: Line perpendicular to the mirror

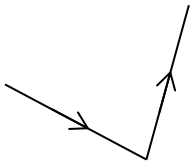
**Angle of incidence** $\theta_i$ ("Theta-I"): Angle between incident ray and normal

**Angle of reflexion** $\theta_r$ ("Theta-r"): Angle between reflected ray and normal

2. State the law of reflection.

3. Explain the difference between specular reflection and diffuse reflection.

4. Here's a light ray reflecting off a mirror.
a) Draw the normal.
b) Draw the mirror.
c) Draw the angle of incidence and the angle of reflexion.

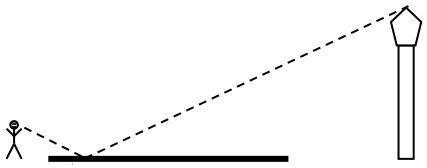


5. You're standing in front of a mirror at a distance of 1.00 m. Where is your image formed? Tick the correct answer.
a) ☐ on the same side of the mirror at a distance of 0.50 m
b) ☐ on the same side of the mirror at a distance of 1.00 m
c) ☐ exactly on the mirror's surface
d) ☐ on the other side of the mirror at a distance of 0.50 m
e) ☐ on the other side of the mirror at a distance of 1.00 m

6. What is meant by a «virtual image»?

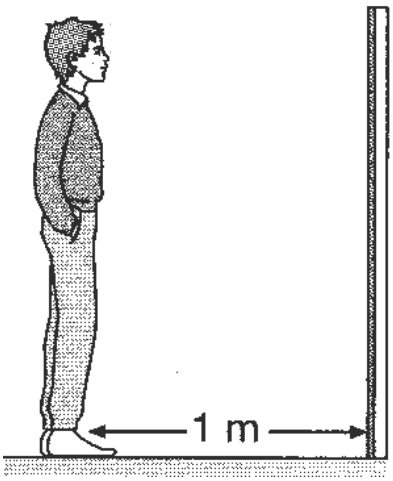
7. Romeo and Juliet are looking at each other's mirror images.
a) Construct the mirror images of Romeo and Juliet.
b) Depict the path of the light ray travelling from Romeo to Juliet.

8. A girl of 1.50 m height is standing next to a pond. On the other side of the pond there's a tower of 6.0 m height.
   The girl looks at the mirror image of the tower in the pond. The light ray travelling from the tower's roof to the girl's eye is reflected off the water's surface at a distance of 3.0 m from the girl.



a) Depict the mirror image of the tower.
b) What is the distance between the tower and the girl?

9. You're 1.60 m tall and standing in front of a mirror.
a) Construct your mirror image.
b) Depict the light ray travelling from your toes to your eyes.
c) Depict the light ray travelling from the top of your head to your eyes.
d) Where are the two light rays from b) and c) reflected on the mirror's surface?
e) What's the minimum size that the mirror needs to be for you to be able to see yourself from head to toe?
f) What happens if you move closer or further away from the mirror? Depict yourself and your mirror image and draw the light rays as in b) and c).




10. Two mirrors perpendicular to each other are forming images of a heart.
a) Depict the mirror images of the mirrors.
b) Depict all mirror images of the heart.
c) Which ones of the mirror images are reversed, which ones are not?